

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled)
2. (Currently Amended): A display apparatus of claim 1 42, wherein said storing circuit comprises a predetermined number of storing elements, said number corresponding to the number of bits in said digital image signal; and said signal selector selects a signal to be supplied to said display element from among a predetermined number of signals, said number corresponding to the number of bits in said digital image signal.
3. (Currently Amended): A display apparatus of claim 1 42, wherein, said storing circuit stores said digital image signal using one or more inverters.
4. (Cancelled).
5. (Currently Amended): A display apparatus of claim 1 42, wherein, said plurality of display pixels is capable of displaying a still image.
6. (Currently Amended): A display apparatus of claim 1 42, wherein, after a still image is written to each of said plurality of display pixels as a digital image signal, operations of driving circuits for driving said plurality of display pixels are stopped until a new digital image signal is written to the same display pixels.

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Reply to Office Action of November 5, 2003

Attorney Docket No. 81784.0224
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7. (Currently Amended): A display apparatus of claim 1 ~~42~~, wherein,
said display apparatus is a liquid crystal display apparatus; and
said display element includes a liquid crystal capacitor and a pair of
electrodes for driving said liquid crystal capacitor.

8. (Original): A display apparatus of claim 7, wherein,
said pair of electrodes for driving said liquid crystal capacitor comprises an
individual display electrode for each display pixel and a facing electrode provided to
face said display electrode; and
at least one of the signals selected by said signal selector is an alternating
current voltage signal which oscillates around the voltage of said facing electrode.

9. (Cancelled):

10. (Currently Amended): ~~A display apparatus of claim 9, wherein A~~
display apparatus, comprising:

a plurality of gate lines provided in one direction of a substrate;

a plurality of drain lines provided in a direction intersecting with said gate
lines; and

a plurality of display pixels, each of which is selected by a scan signal
supplied from corresponding one of said plurality of gate lines, and which is
supplied with an image signal from corresponding one of said plurality of drain
lines; wherein

each of said plurality of display pixels comprises:

a display element;

a first display circuit having a storing circuit, for storing a digital image
signal from said corresponding one of drain lines in response to a scan signal from

said corresponding one of gate lines, and a signal selector which is operated based on data stored at said storing circuit for selecting an output signal from among two or more display signals and supplying said selected signal to said display element; and

a second display circuit having a storage capacitor for storing an analog image signal from said corresponding one of drain lines in response to a scan signal from said corresponding one of gate lines, wherein the signal stored in said storage capacitor is supplied to said display element;

wherein said display pixel further comprises a display circuit selector for selectively supplying an image signal from said corresponding one of drain lines to said first or second display circuit.

11. (Currently Amended): A display apparatus of claim 9 10, wherein said corresponding one of drain lines is constructed from a line for digital image signals and a line for analog image signals, and said first display circuit is connected to said line for digital image signals and said second display circuit is connected to said line for analog image signals.

12. (Currently Amended): ~~A display apparatus of claim 9, wherein, A~~ display apparatus, comprising:

a plurality of gate lines provided in one direction of a substrate;

a plurality of drain lines provided in a direction intersecting with said gate lines; and

a plurality of display pixels, each of which is selected by a scan signal supplied from corresponding one of said plurality of gate lines, and which is supplied with an image signal from corresponding one of said plurality of drain lines; wherein

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each of said plurality of display pixels comprises:

a display element;

a first display circuit having a storing circuit, for storing a digital image signal from said corresponding one of drain lines in response to a scan signal from said corresponding one of gate lines, and a signal selector which is operated based on data stored at said storing circuit for selecting an output signal from among two or more display signals and supplying said selected signal to said display element;
and

a second display circuit having a storage capacitor for storing an analog image signal from said corresponding one of drain lines in response to a scan signal from said corresponding one of gate lines, wherein the signal stored in said storage capacitor is supplied to said display element;

wherein said display pixel further comprises a data selector for selectively supplying an output signal from said first or second display circuit to said display element.

13. (Currently Amended): A display apparatus of claim 9 10, wherein said storing circuit comprises a predetermined number of storing elements, said number corresponding to the number of bits in said digital image signal; and said signal selector selects a signal to be supplied to said display element from among a predetermined number of signals, said number corresponding to the number of bits in said digital image signal.

14. (Currently Amended): A display apparatus of claim 9 10, wherein, said storing circuit stores said digital image signal using one or more inverters.

15. (Currently Amended): A display apparatus of claim 9 10, wherein said storing circuit stores said digital image signal using one or more inverters and a capacitor.

16. (Currently Amended): A display apparatus of claim 9 10, wherein, said plurality of display pixels is capable of displaying a still image.

17. (Currently Amended): A display apparatus of claim 9 10, wherein, after a still image is written to each of said plurality of display pixels as a digital image signal, operations of driving circuits for driving said plurality of display pixels are stopped until a new digital image signal is written to the same display pixels.

18. (Currently Amended): A display apparatus of claim 9 10, wherein, said display apparatus is a liquid crystal display apparatus; and said display element includes a liquid crystal capacitor and a pair of electrodes for driving said liquid crystal capacitor.

19. (Original): A display apparatus of claim 18, wherein, said pair of electrodes for driving said liquid crystal capacitor comprises an individual display electrode for each display pixel and a counter electrode provided to face said display electrode; and

at least one of the signals selected by said signal selector is an alternating current voltage signal which oscillates around the voltage of said counter electrode.


20. (Original): A display apparatus, comprising:
a plurality of gate lines provided in one direction of a substrate;

a plurality of drain lines provided in a direction intersecting with said gate lines; and

a plurality of display pixels, each of which is selected by a scan signal supplied from corresponding one of said plurality of gate lines, and which is supplied with an image signal from corresponding one of said plurality of drain lines; wherein

each of said plurality of display pixels comprises:

a display element;

 a first display circuit having a storing circuit, for storing a digital image signal from said corresponding one of said plurality of drain lines in response to a scan signal from said corresponding one of said plurality of gate lines; and

a second display circuit having a storage capacitor for storing an analog image signal from said corresponding one of said plurality of drain lines in response to a scan signal from said corresponding one of said plurality of gate lines.

21. (Currently Amended): A display apparatus of claim 9 10, wherein

said display pixel further comprises a display circuit selector for selectively supplying an image signal from said corresponding one of drain lines to said first or second display circuit,

said display circuit selector is switched in response to a switching signal, and

said switching signal is a signal common to a plurality of pixels.

22. (Previously Presented): A display apparatus comprising a plurality of display pixels, wherein each of said display pixels comprises:

a pixel electrode;

a first storing circuit for storing digital data and outputting signals to said pixel electrode;

a second storing circuit for storing analog data and outputting signals to said pixel electrode; and

a storing circuit selector for switching between said first and second storing circuits.

23. (Previously Presented): A display apparatus of claim 22, wherein said first storing circuit comprises a predetermined number of storing elements, said number corresponding to the number of bits in said digital image signal; and

further including a signal selector for selecting a signal to be supplied to said display element from among a predetermined number of signals, said number corresponding to the number of bits in said digital image signal.

24. (Previously Presented): A display apparatus of claim 22, wherein, said first storing circuit stores said digital image signal using one or more inverters.

25. (Previously Presented): A display apparatus of claim 22 wherein, said plurality of display pixels is capable of displaying a still image.

26. (Previously Presented): A display apparatus of claim 22, wherein, after a still image is written to each of said plurality of display pixels as a digital image signal, operations of driving circuits for driving said plurality of display pixels are stopped until a new digital image signal is written to the same display pixels.

27. (Previously Presented): A display apparatus of claim 22, wherein,
said display apparatus is a liquid crystal display apparatus; and
said display element includes a liquid crystal capacitor and a pair of
electrodes for driving said liquid crystal capacitor.

28. (Previously Presented): A display apparatus comprising a plurality of
display pixels, wherein each of said display pixels comprises:

a pixel electrode;

a first storing circuit for storing digital data;

a signal selector for selecting a signal for display from among a
plurality of signals based on an output of said first storing circuit and for outputting
the selected display signal to said pixel electrode;

a second storing circuit for storing analog data and for directly
outputting the analog data to said pixel electrode; and

a storing circuit selector for switching between said first and second
storing circuits.

29. (Previously Presented): A display apparatus of claim 28, wherein
said first storing circuit comprises a predetermined number of storing
elements, said number corresponding to the number of bits in said digital image
signal; and

said signal selector selects a signal to be supplied to said display
element from among a predetermined number of signals, said number
corresponding to the number of bits in said digital image signal.

30. (Previously Presented): A display apparatus of claim 28, wherein,
said first storing circuit stores said digital image signal using one or
more inverters.

31. (Previously Presented): A display apparatus of claim 28, wherein,
said plurality of display pixels is capable of displaying a still image.

32. (Previously Presented): A display apparatus of claim 28, wherein,
after a still image is written to each of said plurality of display pixels
as a digital image signal, operations of driving circuits for driving said plurality of
display pixels are stopped until a new digital image signal is written to the same
display pixels.

33. (Previously Presented): A display apparatus of claim 28, wherein,
said display apparatus is a liquid crystal display apparatus; and
said display element includes a liquid crystal capacitor and a pair of
electrodes for driving said liquid crystal capacitor.

34. (Previously Presented): A display apparatus comprising a plurality of
display pixels, wherein each of said display pixels comprises:

a pixel electrode;

a first storing circuit for storing digital data;

a second storing circuit for storing analog data; and

a memory selector for switching a digital display mode in which said
first storing circuit is used in all of said display pixels and an analog display mode
in which said second storing circuit is used in all of said display pixels.

35. (Previously Presented): A display apparatus of claim 34, wherein
said first storing circuit comprises a predetermined number of storing
elements, said number corresponding to the number of bits in said digital image
signal; and

further including a signal selector for selecting a signal to be supplied
to said display element from among a predetermined number of signals, said
number corresponding to the number of bits in said digital image signal.

36. (Previously Presented): A display apparatus of claim 34, wherein,
said first storing circuit stores said digital image signal using one or
more inverters.

cont

37. (Previously Presented): A display apparatus of claim 34, wherein,
said plurality of display pixels is capable of displaying a still image.

38. (Previously Presented): A display apparatus of claim 34, wherein,
after a still image is written to each of said plurality of display pixels
as a digital image signal, operations of driving circuits for driving said plurality of
display pixels are stopped until a new digital image signal is written to the same
display pixels.

39. (Previously Presented): A display apparatus of claim 34, wherein,
said display apparatus is a liquid crystal display apparatus; and
said display element includes a liquid crystal capacitor and a pair of
electrodes for driving said liquid crystal capacitor.

40. (Previously Presented): A display apparatus comprising:
a plurality of gate lines provided in one direction of a substrate;

a plurality of drain lines provided in a direction intersecting with said gate lines; and

a plurality of display pixels, each of which is selected by a scan signal supplied from corresponding one of said plurality of gate lines, and which is supplied with an image signal from corresponding one of said plurality of drain lines; wherein

each of said plurality of display pixels comprises:

a display element;

a switching element which is operated based on a scan signal from corresponding one of said plurality of gate lines for capturing a one-bit digital image signal from corresponding one of said drain lines;

a storing circuit for storing said one-bit digital image signal supplied via said switching element; and

a signal selector which is operated based on the digital signal stored at said storing circuit for selecting an output signal from among two or more display signals and for supplying said selected signal to said display element.

41. (Previously Presented): A display apparatus, comprising:
a plurality of gate lines provided in one direction of a substrate;
a plurality of drain lines provided in a direction intersecting with said gate lines; and

a plurality of display pixels, each of which is selected by a scan signal supplied from corresponding one of said plurality of gate lines, and which is supplied with an image signal from corresponding one of said plurality of drain lines; wherein

each of said plurality of display pixels comprises:

a display element;

a storing circuit for storing a digital image signal from said corresponding one of said plurality of drain lines in response to a scan signal from said corresponding one of said gate lines; and

a signal selector which is operated based on data stored at said storing circuit for selecting an output signal from among two or more display signals and for supplying said selected signal to said display element; and

wherein said storing circuit stores said digital image signal using one or more inverters and a capacitor.

42. (Previously Presented): A display apparatus comprising:

a plurality of gate lines provided in one direction of a substrate;

a plurality of drain lines provided in a direction intersecting with said gate lines; and

a plurality of display pixels, each of which is selected by a scan signal supplied from corresponding one of said plurality of gate lines, and which is supplied with an image signal from corresponding one of said plurality of drain lines; wherein

each of said plurality of display pixels comprises:

a display element;

a storing circuit which is operated based on a scan signal from corresponding one of said plurality of gate lines for storing a digital image signal having a size of two or more bits supplied from corresponding one of said drain lines; and

a signal selector which is operated based on the digital signal stored at said storing circuit for selecting an output signal from among a plurality of display signals and for supplying said selected signal to said display element.

43. (New): A display apparatus of claim 41, wherein,
said storing circuit comprises a predetermined number of storing elements,
said number corresponding to the number of bits in said digital image signal; and
said signal selector selects a signal to be supplied to said display element
from among a predetermined number of signals, said number corresponding to the
number of bits in said digital image signal.

44. (New): A display apparatus of claim 41, wherein,
said storing circuit stores said digital image signal using one or more
inverters.

45. (New): A display apparatus of claim 41, wherein,
said plurality of display pixels is capable of displaying a still image.

46. (New): A display apparatus of claim 41, wherein,
after a still image is written to each of said plurality of display pixels as a
digital image signal, operations of driving circuits for driving said plurality of
display pixels are stopped until a new digital image signal is written to the same
display pixels.

47. (New): A display apparatus of claim 41, wherein,
said display apparatus is a liquid crystal display apparatus; and
said display element includes a liquid crystal capacitor and a pair of
electrodes for driving said liquid crystal capacitor.

48. (New): A display apparatus of claim 47, wherein,
said pair of electrodes for driving said liquid crystal capacitor comprises an individual display electrode for each display pixel and a facing electrode provided to face said display electrode; and

at least one of the signals selected by said signal selector is an alternating current voltage signal which oscillates around the voltage of said facing electrode.

49. (New): A display apparatus of claim 12, wherein,
said display pixel further comprises a display circuit selector for selectively supplying an image signal from said corresponding one of drain lines to said first or second display circuit.
